SUMMARY REPORT

Brookline, MA

Municipal Services Center
Operations Facility Planning Study

April 2013

Weston&Sampson

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25 April 2013

Mr. Andrew M. Pappastergion, Commissioner
Department of Public Works
Town Hall – Room 211
333 Washington Street
Brookline, Massachusetts 02445

Re: Municipal Services Center - Facility Planning Study

Dear Commissioner,

We are pleased to submit this summary report which documents work completed under the above referenced contract by Weston and Sampson relative to facility space needs assessments, master planning for a modified facility to better serve the needs of your Department, and an engineering assessment of the deteriorated second floor parking deck.

Please feel free to contact me if you have questions regarding any of the work or recommendations included in this document. We have been very appreciative of the opportunity to work with you and your staff during the execution of this study.

Very truly yours,
WESTON & SAMPSON

D. Michael Hicks, AIA
Director of facilities and Architecture

Cc: Kevin Johnson, Highway & Sanitation Division (1 copy)
Erin Gallentine, Parks & Open Space Division (1 copy)
Tony Guigli, Buildings Department (2 copies)

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EXECUTIVE SUMMARY

Weston & Sampson was commissioned by the Town of Brookline to complete a facility program and master plan for consolidating all activities of the Highway & Sanitation Division, the Parks and Open Space Division, and the Building Department into the existing Municipal Services Center (MSC). The primary tasks included in this assignment were as follows:

1. Prepare a Space Needs Assessment for a facility to house all activities of the Highway & Sanitation Division, the Parks and Open Space Division, and the Building Department;

2. Prepare planning studies, and associated estimates of construction costs, for modifying / expanding the MSC facility to house all activities of these operating units;

3. Prepare an assessment of the conditions of the deteriorated second floor parking deck, and make recommendations for repair and future use.

This report details the work completed by our Consultant team.

Weston & Sampson interviewed senior management and supervisory staff to develop a detailed understanding of the range of work activities executed by the subject operating units, and compared the requested space needs with our in-house data base of space needs assessments completed for other municipal public works and facilities agencies in Southern NE during the past 10 years. The result was a recommended facility space program that was developed to suit the unique requirements of Brookline. As a result, Weston & Sampson has concluded that an ideal facility to house the three identified operating units would include approximately 147,000 sf of enclosed space. Not surprisingly, this recommendation is more than twice the size of the existing MSC facility (68,100 sf), which is universally acknowledged to be inadequate to meet its intended use.

Weston & Sampson then developed a series of three planning schemes. The initial intent was to test fit the recommended facility program onto the existing MSC site. When that was proven not to be possible, the Consultant team worked with senior Department officials to explore alternative approaches which took into consideration the need to address the deteriorated second floor parking deck, the need to acknowledge the probability of community opposition to a major construction program at the MSC site, and at the Transfer Station facility, and the Town's capacity to fund an MSC upgrade project in the near term. The third, and final planning alternative envisions repair of the second level parking floor structure, reorganization of spaces within the MSC facility to minimize the potential for future deterioration of the repaired floor structure, expansion of the administrative area to better accommodate the management and supervisory functions of the Highway & Sanitation Division and the Parks and Open Space Division, relocation of trade shops, repurposing the existing welding bay fr use as a large vehicle wash bay, construction of new stand-alone small vehicle wash bay and construction of a modest storage canopy at the Transfer Station.

A more detailed explanation of the completed tasks follows.

SPACE NEEDS ASSESSMENT

Weston & Sampson toured the existing MSC facility at 870 Hammond Street, the existing Parks and Open Space metal buildings and site at Larz Anderson Park, Buildings Department operations within historic buildings at Larz Anderson Park, and the existing Transfer Station operations and storage facility at 815 Newton Street. Subsequently there was a series of meeting with senior staff within the Department to discuss in detail the operations and storage space requirements for the Parks and Open Space Division, the Highway and Sanitation Division, and the Building Department.

Data gathered at those meetings was organized and compared with similar facilities that Weston & Sampson has programmed and designed for other municipal public works departments in Southern NE during the past 10 years. The result of this comparative analysis was a Space Needs Assessment spreadsheet that presented recommended sizes for spaces required to support the operations of the working groups. Spaces were organized by type (e.g. Common Areas, Office / Office support areas, Employees Facilities, Work Shops, etc.), and where it was deemed appropriate, spaces were identified as shared by multiple divisions. Each category of space type (e.g. Office) was summarized, and "grossing factors" applied to account for non-usable space (corridors, stairs, building structure, mechanical duct space, etc.). This document reflects Weston & Sampson's recommendation for an "ideal" facility to house the Parks and Open Space Division, the Highway and Sanitation Division, and the Builds Department in a joint operations facility. The summary of this recommendation was a facility totaling 147,000 sf.

Diagrammatic sketches were created for all spaces identified in the Space Needs Assessment, for the purpose of demonstrating the functional requirements as understood by Weston & Sampson, and the logic behind the square footage identified for each space. Planning block diagrams, which consist of the cumulative areas for all spaces with each category of space for each Division, were created to illustrate the relative building volumes required.

A final portion of the Space Needs Assessment was the calculation of existing space occupied by each Division at the current MSC facility, which totals 68,000 sf., less than 50% of the projected "ideal" facility. The purpose of this exercise was to create a baseline of existing conditions against which the Team could compare the projected requirements for any facility improvements.

The work products from the Space Needs Assessment work are included in the March 13, 2012 Report, which is included in the Exhibits.

It is important to point out that the MSC facility was designed (1996) and constructed to house the Highway and Sanitation Division only, and it has been acknowledged by Town officials that the MSC project had been significantly reduced in size during the design process for budgetary purposes. Consequently the building did not fully meet the Division's needs the day it opened. In recent years many elements of Parks and Open Space Division operations have been relocated from Larz Anderson Park to MSC, primarily due to the severely deteriorated conditions of the repurposed, aged metal buildings at Larz Anderson that have for many years been used for Parks and Open Space operations. Thus, the MSC building and site are now being forced to support considerably more staff, equipment and operational activities than had been envisioned when the facility was designed. The facility, which was tight for space the day it opened, is now severely stressed, and the efficiency of Department operations have been compromised, due to the crowded conditions at MSC.

SITE AND BUILDING PLANNING

The site and Building planning effort was an iterative process.

The initial planning iteration was focused on identifying if the full, recommended program of space could be accommodated on the existing MSC site and Transfer Station. This analysis culminated with the presentation of set of drawings titled **"Max-Build Test Fit", dated June 2012** (see exhibits).

The first part of the presentation focused on characteristics of the existing site and MSC facility.

1. The 207,000 sf MSC site is a "pork chop" shaped parcel (a ± 200' x 400' section fronting on Hammond Street which linked to a nearly 400' x 400' portion in the rear) which is bordered on three sides by prime park land and golf course.

2. The site has a number of challenging existing conditions, including: a considerable change on elevation (21 feet) across the north to south width of the widest portion; the narrowness of the front section bordering on Hammond Street; and exposed ledge immediately to the north that effectively eliminates the potential for lateral expansion of the property line.

3. The zoning bylaws do not place dimensional limitations of any import on the site.

4. There is a high level of sensitivity with the surrounding residential community about the proximity of DPW operation, which is the primary reason that all DPW structures and operations are relegated to the rear of the site.

The principal challenges of the existing facility as perceived by the Consultant were as follows:

1. The large number of employee vehicles that need to be accommodated on the site during the day. All areas originally planned for employee parking are quickly filled, and all driveways and access roads are narrowed by curb-side parking, making vehicular movement about the site problematic.

2. The fueling station, which serves all Town Departments, is located beyond the lower employee parking lot, near the middle of the site. This forces non-DPW vehicles to traverse through congested areas to reach the fuel pumps, which creates the potential for maneuvering problems during poor-visibility conditions or emergency situations.

3. The salt storage / loading area is located at the rear of the site, farthest from Hammond Street, beyond the employee parking lot and the fueling station. Salt loading operations are confined on one side by the DPW building and the other by the property line. Salt loading operations at this location are clearly a challenge, although the Department has learned to accommodate the space limitations.

4. The eastern half of south property line, which abuts the golf course, sits on top of a slope of between 3-5 feet height, which encroaches onto the DPW site by 10-20 feet. This loss of site width significantly impacts vehicular movement from the fueling station back to the salt loading area, a zone that is constantly under heavy use since it also provides the sole means of access to the vehicle maintenance bays.

5. The neighborhood sensitivity to DPW activities is viewed as an impediment to any planning scheme which seeks to take advantage of the site features by relocating functions or construction of expanded facilities closer to Hammond Street.

6. The deteriorated condition of a significant the portion of second floor, indoor DPW-vehicle parking area that is supported by a concrete-filled corrugated metal deck over a steel structural frame.

The remaining portion of the presentation illustrated this concept facility reorganization / expansion scheme, the key features of which include:

1. Extension of the existing building towards Hammond Street in order to create structured parking for employee vehicles, thus freeing up the ground level of circulation of Department vehicle traffic, and additional Department vehicle storage at the ground level;

2. Expansion of the administration area into the southern half of the second floor area where DPW trucks are currently parked, and relocation of employee lockers / showers / locker rooms to the same area. (As is outlined in more detail in a later section of this report, engineering analysis has shown that the existing structure supporting the southern half of the second floor parking level isn't adequate to resist continued use for heavy vehicle parking. Therefore, Weston & Sampson's recommendation is for that portion of the second slab to be repaired, and then used for non-vehicular uses, such as administration and employee facilities);

3. Relocation of the second floor workshops and wash bay, currently located at the northern end of second floor parking level, down to the ground floor, into space vacated by the relocated employee facilities, along with some additional construction to the north to provide an area equivalent to the current shops/wash bay;

4. Expansion of the second floor parking area to the property lines to the north, in order to generate additional indoor storage for department vehicles;

5. Relocation of the fueling station to a location closer to the site entrance, in order to minimize the need for non-DPW vehicles to enter into the heart of the MSC site, and potentially interfere with DPW activities;

6. Construction of retaining walls along the southern property line adjacent to the golf course to allow productive use of the full width of the property

The final portion of this initial planning presentation was a comparison of the functional area included in the Max-Build Test Fit scheme, by type of space, as compared to the existing facility, and the recommended facility program. The conclusion of this study was that the MSC site is not large enough to support the recommended facility program, or to house all operational vehicles indoors.

USE	Existing	Program	Max-Build
Administration	9,083 sf	13,472 sf	15,500 sf
Employee Facilities	7,440 sf	7,350 sf`	7,200 sf
Shops / Material Stores	17,505 sf	13,443 sf	12,945 sf
Vehicle Maintenance	15,049 sf	12,810 sf	13,500 sf
Vehicle Wash Bays / Equip.	(Incl. above)	3,413 sf	3,400 sf
Vehicle Storage	19,023 sf	96,731 sf	64,975 sf
totals	68,100 sf	147,219 sf	117,520 sf

With respect to the ability to "warm-store" the existing fleet of Department vehicles at the MSC site, the comparison was:

	Approximate fleet size	Capacity of Max-Build
Parks:	40 vehicles	
Bldg:	11 vehicles	
Hgwy:	70 vehicles	
	121 vehicles	77 vehicles

With respect to the on-site parking of employee's private vehicles:

Existing: 80 spaces, all at grade
Max-Build: 147 spaces (88 on first level + ramp, 59 on upper level)

The Max-Build scheme was reviewed with senior Department officials. There was extensive discussion about the anticipated operational benefits of each of the elements of the recommended facility program, and the Max-Build scheme. There was also focused discussion about the need to address to continued deterioration of the second floor indoor truck parking floor slab, and the anticipated community opposition to a plan which proposed significant new structures that would be visible from Hammond Street. Finally, it was concluded that expanding the MSC facility to adequately house the Highway & Sanitation Division and the Parks & Open Space Division was going to be enough of a challenge that the project team needed to acknowledge it was not going to be possible to co-locate the Buildings Department at this parcel.

The second planning iteration, (**Phased Renovation / Expansion Scheme, October 2012**) was based on the premise that new construction towards Hammond Street would not be feasible, but that expansion of the second floor vehicle parking facility to the limits to the property line would be possible, as well as a modest amount of new construction at ground level as long as it didn't intrude into the existing employee parking lot that now acts as a buffer between the MSC facility and Hammond Street.

This scheme retains the reorganization and expansion of the second level from the previous. The deteriorated second floor parking deck, which constitutes the southern half of the truck garage, would be repaired and repurposed for use as expanded administration space, and relocated employee facilities. The expanded administration space is adequate to allow for development of suitable office, meeting and document storage spaces to house Highway/Sanitation and Parks/Open Space administration functions. Significantly, the adjacent centralized employee facilities consists of not only relocated lockers / showers / toilets, but also a large, shared employee meeting / break / training room, which is conspicuously missing in the current MSC complex, along with a storm command center and check-in space for outside plowing contractors. This will allow the start-of-shift and end-of-shift coordination between DPW staff and foremen / supervisors to take place far more effectively that it does now, and will provide for the appropriate functional adjacencies during snow-fighting / emergency operations.

The northern and western portion of the second floor parking level is expanded laterally to the limits of the property line, similarly to the previous scheme. During the development of this iteration, more detailed consideration was given to the structural and construction cost implications of this approach, given that the existing exterior wall is bearing masonry which supports an open-web steel joist and corrugated metal deck roof system.

For this iteration the ground floor houses the relocated carpentry shop in existing space vacated by the relocated employee lockers / showers / toilets. A modest building addition of approximately 100 length, extending roughly to the edge of the existing employee parking lot, houses the relocated signal, sign, and meter shops as well as a relocated single vehicle wash bay. This addition does require that the existing exterior electrical transformers and HVAC compressors be shifted further towards Hammond Street, and in order to provide adequate, safe access to the shops, the existing fueling station would be relocated along

the south property line retaining wall. Also included is a new, reconfigured salt shed.

This iteration also included a "U" shaped cold storage building at the Transfer Station that would be located adjacent to the DPW existing bulk material storage bins, with the intent to house off-season vehicles and equipment. It was also noted during discussions of this scheme that the Parks & Open Space Division currently houses a number of specialized pieces of equipment primarily used during the summer months in one of the existing transfer station buildings, along with bagged turf maintenance supplies. The intent of the proposed cold storage building was to increase the Department's capacity to store vehicles / equipment out of the weather.

The comparative area analysis of the second iteration showed that this scheme would allow the Town to meet the space needs for all elements of the Highway & Sanitation and Parks & Open Space Divisions, except for Shops and Materials Storage. Vehicle storage, however, remains a shortfall.

USE	Existing	Program	Proposed
Administration	9,083 sf	13,472 sf	13,400 sf
Employee Facilities	7,440 sf	7,350 sf`	7,806 sf
Shops / Material Stores	17,505 sf	13,443 sf	5,050 sf
Vehicle Maintenance	15,049 sf	12,810 sf	15,049 sf
Vehicle Wash Bays / Equip.	(Incl. above)	3,413 sf	1,600 sf
Vehicle Storage	19,023 sf	96,731 sf	42,410 sf warm (MSC) 36,900 sf cold (TS) 99,310 sf total
totals	68,100 sf	147,219 sf	142,215 sf

VEHICLE STORAGE

Approximate fleet size		Capacity of Proposed
Parks:	40 vehicles	34 vehicles, warm (MSC)
Hgwy:	70 vehicles	46 vehicles, cold (TS)
	110 vehicles	80 vehicles

This iteration anticipated the work would be accomplished in three phases, and the concept level construction costs anticipated for each phase were:

Phase One: Rehabilitation of the second floor parking deck: $ 300,000
(cost previously established)

Phase Two: Reconfiguration / Expansion of MSC: $ 7,392,000
(not including expansion of second floor truck parking)

Phase Three: New / Expanded Vehicle Storage Buildings: $ 9,967,372
(MSC and Transfer Station)

Backup for Phase Two and Three calculations are included in the exhibits.

The work products of the Phased Renovation / Expansion Scheme were reviewed during an October meeting with senior DPW officials. The consensus was that, while the proposed improvements would likely

generate significant benefits for the Department, the current funding capacity of the Town does not support a project of this size. In addition, it was felt there would be community opposition to such a large construction project at the Transfer Station.

A subsequent meeting was held in December to discuss a planning and funding strategy that the Department felt was achievable.

PHASE ONE

a) Repair of the second floor vehicle parking area structured floor slab.

PHASE TWO (to be started immediately as Phase One is being completed)

a) Consolidate / relocate shops from north upper floor (slab-on-grade) to the south side

b) Demolish vehicle wash bay, close exterior OH door, and save cat-walk for re-use;

c) Reduce the size of the main vehicle OH door to restrict access to small vehicles;

d) Install highway barrier at demarcation between slab on grade and structured slab to define separation between large and small vehicle parking;

e) Restripe parking areas

f) Construct muster / training room adjacent to relocated shops, relocate existing storage racks to small vehicle parking area;

g) Convert existing welding bay into large vehicle wash bay – remove mezzanine, relocate existing pressure wash equipment, relocate existing cat-walk;

h) Construct gravity block retaining wall along south property line with golf course;

i) Construct small vehicle wash bay along south property line.

PHASE THREE

a) Construct canopy over existing fuel island;

b) Construct limited canopy storage at Transfer Station adjacent to bulk storage bins

c) Install high-bay storage racks in existing high-volume Transfer Station Building.

<u>The third planning iteration</u> was developed on the basis of the above outlined strategy (Revised Renovation Scheme, December 2012).

A detailed conceptual level construction cost estimate was prepared based in the December sketches.

<u>Phase One: Rehabilitation of the second floor parking deck</u>: $ 300,000
(cost previously established)

Phase Two: Modifications to MSC:	$ 1,706,500
Phase Three: New canopies & storage racks: (MSC and Transfer Station)	$ 825,800

Backup for Phase Two and Three calculations are included in the exhibits.

MSC STRUCTURAL FLOOR SLAB EVALUATION

As part of the programming process for the Municipal Service Center, Weston & Sampson evaluated the current condition of the elevated slab in the vehicle storage area. The elevated slab has been deteriorating at an accelerated rate since the structure was built in 1996 requiring frequent repairs and constant maintenance. The purpose of the evaluation is to provide recommendations to reduce the frequency of repairs and maintenance. The evaluation was limited to a review of all existing documentation and a visual inspection of the elevated slab.

The available existing documentation reviewed included the 1996 construction drawings of the Municipal Service Center, a letter report prepared by CBI Consulting, Inc. in April of 2003 pertaining to recommendations for slab repairs, and a condition assessment report prepared by Walker Parking Consultants in August of 2003. Both reports concluded that the accelerated deterioration was caused by low quality concrete exposed to water with a high salt concentration from the DPW vehicles stored in this area. The reports further recommended that the slab be either spot repaired or be removed and replaced.

Discussions with DPW personnel revealed that the slab has undergone constant repairs through the years. The initial repair performed in 2005 included removal of low quality concrete through the use of hydro-demolition and placement of new concrete with a protective coating. Since the 2005 repairs, the Town has had to perform frequent spot repairs to the concrete slab which were either performed by a contractor or by Town personnel.

During the visual inspection, which took place in April 2012, it was observed that delamination of the concrete slab is prevalent around the previously repaired areas. It is estimated that 15% of the total slab area is in need of repair. Upon completion of our visual inspection of the slab, we see evidence that the concrete deterioration continues. The observations made by Weston & Sampson are consistent with the observations made in the 2003 reports.

Based upon the review of the documentation and the visual inspection, Weston & Sampson recommends the following options be considered:

1. Remove the existing elevated slab completely and replace with a reinforced concrete slab with a protective coating. This option will provide the Town a long term solution to the problem with the elevated slab and will allow continued use of the space for vehicle storage.

2. Spot repair the concrete slab on an as needed basis. This option continues to provide a short tem solution to the problem and will allow continued use of the space as vehicle storage.

3. Discontinue using the space for vehicle storage. This option will remove the primary cause of the slab deterioration; however, the slab will still need to be repaired to allow for other uses of the space.

EXHIBITS

A. Minutes of Meetings

B. Space Needs Assessment

C. Aerial photographs of MSC and Transfer Station

D. Zoning documents

E. Organization Charts & Vehicle / Equipment Lists

F. Excerpts from Original Construction Documents

G. Site and Building Planning documents

H. Structural Floor Slab Analysis